

Phosphorus and its Impact on Stream Ecology

Bridgette Valdez
Washington State Dept. of Ecology
Water Quality Program

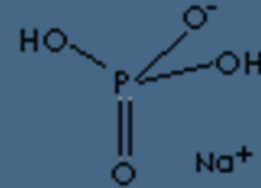
What are phosphates?

- Organic phosphates are found naturally in soils and rocks and act as “plant food”
- Inorganic phosphates are compounds used in some soaps, detergents and fertilizers

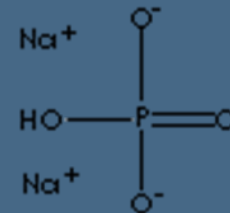
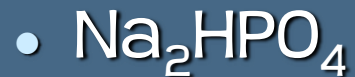


Common Inorganic Phosphates

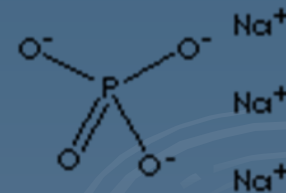
➤ Mono-sodium phosphate



➤ Di-sodium phosphate



➤ Tri-sodium phosphate



Sources of Phosphates

- Rocks, soils and clays that contain phosphorus rich minerals
- Animal waste (poop)
- Decaying plant matter
- Laundry detergents
- Dish soaps
- Inorganic fertilizers
- Leaking septic tanks
- Discharge of sewage (treated & untreated)

What's the problem?

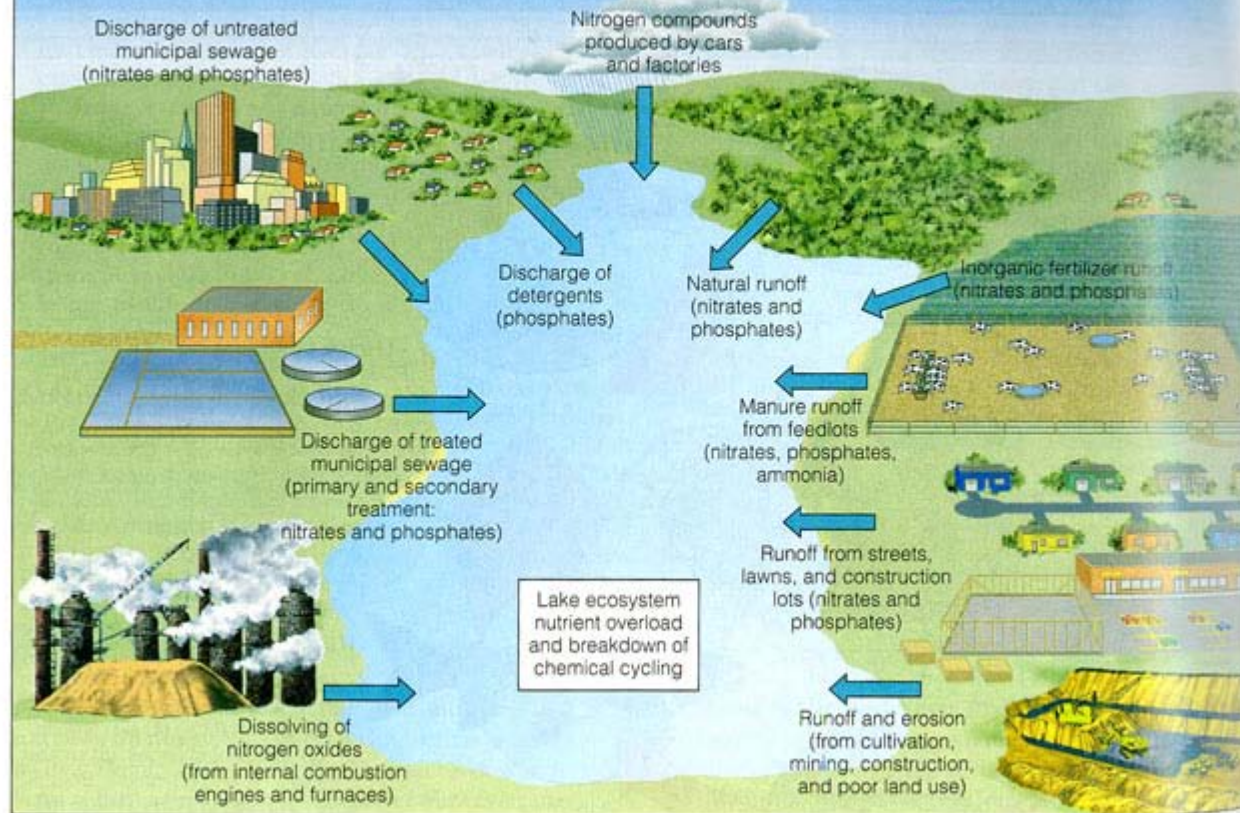
- Although phosphorus is a naturally occurring nutrient, human impacts have increased its availability
- Most waste water treatment plants cannot take phosphorus out of the water

Eutrophication

- An increase in nutrient levels and biological productivity
- Natural process, however can be influenced by human activities
 - Cultural eutrophication

Cultural Eutrophication

Sources of Cultural Eutrophication



Eutrophication Cycle

- Nutrients enter water body
 - Excessive algae growth occurs
 - Algae die
 - Bacteria that decompose plants use up oxygen
- Nutrients enter water body
 - Excessive algae growth occurs
 - Create dissolved oxygen during the day and use at night

Why is this a problem?

Every creature in the water uses oxygen!



Results of Eutrophication



What can you do?

- Pick up after your animals
- Use soaps, detergents and cleaners that don't contain phosphates (TSP, DSP, MSP)
 - If you do use soaps and detergents that contain phosphates, *follow the directions*
- If you use fertilizers that contain phosphates, read the directions carefully and don't use too much

What can you do?

- Compost your kitchen scraps and lawn waste and use that as your fertilizer
- Don't over-water your lawn
- Plant native shrubs and trees near rivers
- Inform others about the affects of phosphorus on Washington's environment

Questions or Comments?